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REMARKS/ARGUMENTS**Status of Claims**

Claims 1-34 remain in the application.

The Examiner has indicated that claims 2-11 and 15-17 would be allowable if rewritten in independent form incorporating the limitations of base and intervening claims and claim 34 would be allowable if rewritten to overcome the claim objection described in the Office Action and if rewritten in independent form incorporating the limitations of base and intervening claims. None of the claims have been rewritten at this time, but Applicant reserves the right to do so at a later date.

Amendments to Claims

In claims 30, 32 and 34 the expression "adapted to" has been replaced with "operable to".

Claim Objections

In claims 30, 32 and 34, the Examiner has objected to the expression "adapted to" as language which "suggests or makes optional but does not require the particular steps to be performed". Applicant submits that the expression "operable to" in amended claims 30, 32 and 34 clearly describes that the device operates according to the recited manner. Applicant respectfully requests that the Examiner reconsider and withdraw the objection to claims 30, 32 and 34.

35 U.S.C 103 Claim Rejections

The requirements for establishing a *prima facie* case of obviousness as set out in the MPEP Section 2143.01 require that references when combined teach all of the claimed limitations, that there be a reasonable expectation of success in realizing the claimed invention, and that there be a motivation to combine the references.

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The Examiner has rejected claims 1, 12-14 and 18-33 under 35 U.S.C. 103(a) as being unpatentable over Bourlas (U.S. Patent No. 6,459,687) in view of Pollack (U.S. Patent No. 6,192,026).

The Examiner alleges that Bourlas discloses all the limitations of claim 1 except for the locally transmitted and remotely transmitted signals being substantially orthogonal. The Examiner equates "receiving, at a device, a received signal that includes a remotely transmitted signal, where said remotely transmitted signal is in a given frequency band; and transmitting, at said device, concurrent with said receiving, a locally transmitted signal in said given frequency band" with the disclosure in Bourlas at column 1, lines 47 to 52 and column 6, lines 58-63. The disclosure in these brief portions of Bourlas is nothing more than what is described in the background of the invention of the present application starting at page 3, line 13, which is the use of frequency division multiplexing (FDM). The present application recites "A traditional approach to (two way) radio system design places the two directions of transmission in different frequency channels. This separation of the transmission and reception frequency, known as Frequency Division Duplexing (FDD), is necessary to permit the radio apparatus to adequately separate the relatively strong local transmissions from the relatively (very) weak signals received from the other end. Unfortunately, because the receiver is receiving on a channel that is well separated, in frequency, from the channel used by a related transmitter, the channel conditions measured by the receiver may not be suitable for adapting the radio transmission techniques for the transmitter" (emphasis added). Bourlas is disclosing nothing more than standard frequency division duplexing techniques, in which separate and non-overlapping frequency bands are used to enable transmitting and receiving by a network element at the same time.

Bourlas does not suggest or disclose that transmitting of a locally transmitted signal is performed at the device, concurrent with receiving, in the same frequency band, where the locally transmitted signal is substantially orthogonal to said remotely transmitted signal, as recited in claim 1. As described in the Summary of the Invention section of the present application starting on page 3, line 15, "By using orthogonal signals for each direction of communication on a communication channel, each end of a communications link using the channel may transmit and receive simultaneously in the same frequency band" (emphasis added).

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An example of allowing the signals to be orthogonal is using OFDM (Orthogonal frequency division multiplexing) techniques. OFDM is a form of multiplexing that distributes data over a number of overlapping sub-carriers that have a very precise spacing in the frequency domain. The precise spacing in the frequency domain enables the traffic on the respective sub-carriers to be orthogonal to each other, resulting in cross-talk between the sub-carriers being eliminated. In FDM (frequency division multiplexing), which is used in FDD, different frequency bands are assigned to different directions of communication, for example a first band for transmission and a second band for reception.

The Examiner alleges that Pollack's disclosure of OFDM signals transmitted and received between an access point and data communication devices in a wireless system is equivalent to "said locally transmitted signal is substantially orthogonal to said remotely transmitted signal" as recited in claim 1.

As described in the Summary of the Invention of Pollack at column 4, lines 22-29, "the method includes a step of transmitting an access request burst from a plurality of data communication devices to a central access point. The access request burst is divided into a plurality of OFDM tones. Each one of the plurality of data communications devices transmits using only a subgroup of the plurality of OFDM tones. The method further includes a step of receiving the access request burst at the central access point". Pollack is disclosing a method in which multiple data communication devices (DCDs) are communicating with a central access point, each DCD using only a subgroup of the plurality of OFDM tones. In Pollack, each of the DCDs is communicating with only a central access point, not the other DCDs. In claim 1 of the present application, a method is recited for which a device receives and transmits concurrently in the same frequency band. Pollack does not suggest or disclose that a device receives a remotely transmitted signal, where the remotely transmitted signal is in the same frequency band as a locally transmitted signal, that the receiving and transmitting occurs concurrently and that "said locally transmitted signal is substantially orthogonal to said remotely transmitted signal". For example, Pollack discloses an Air Interface Frame (AIF) in Figure 4B. This AIF discloses distinct downlink (402,406, 408) and uplink (404) frame portions (i.e. time division duplexing). Such a frame does not suggest concurrent transmission and receiving.

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For at least the reasons discussed above, Applicant respectfully submits that Bourlas and Pollack, either alone or in combination, do not teach all the limitations recited in independent claim 1 as alleged by the Examiner. Applicant submits that the Examiner has failed to satisfy a first criterion required in establishing a *prima facie* case of obviousness, namely that all limitations be taught by the cited art.

Applicant submits that there would be no reasonable expectation of success in a combination of subject matter of the two references. As discussed in detail above, neither of the two references, either alone or in combination suggests or discloses all the limitations of claim 1. Without all the limitations of claim 1 being disclosed by the two references, either alone or in combination, it is not reasonable to expect to achieve the invention in the manner recited. Therefore, the Examiner has failed to satisfy the second criterion for establishing a *prima facie* case of obviousness, namely that there is a reasonable expectation of success in a combination of subject matter of the two references.

With regard to motivation to combine the references, Applicant submits that neither of the two pieces of cited art suggest the subject matter of the other piece of prior art in a manner that would lead one skilled in the art to arrive at the claimed invention by a review of the two references. In addition, neither reference refers to the other. The respective prior art does not suggest, either alone or in combination the desirability of the claimed invention. As was clearly stated *In re Kotzab*, 55 USPQ2d 1313, 1318 "Identification of prior art statements that, in abstract, appear to suggest claimed limitation does not establish *prima facie* obviousness without a finding as to specific understanding or principle within knowledge of skilled artisan that would have motivated one with no knowledge of invention at issue to make combination in manner claimed" (emphasis added).

The Examiner states it would have been obvious to combine the teachings of Bourlas and Pollack to "to reduce interference between signals". Applicant respectfully submits that this is not a sufficient motivation to combine the two cited references. As described above, Bourlas discloses an FDD system. In a typical FDD system the different frequency bands are designed so that there is minimal interference between bands if they are adjacent and even less interference between two bands if they are separated by a given number of bands. Therefore, encoding the

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signals in separate bands to be orthogonal to each other, as disclosed in Pollack, would not provide a considerable reduction in interference between the signals. Applicant submits one skilled in the art would not look to using OFDM as disclosed by Pollack in an FDD system as disclosed in Bourlas, especially to arrive at the claimed invention. Even if the combination of references did provide a reduction in interference between signals, the mere fact that interference may be reduced between transmitted and received signals does not provide sufficient motivation to combine the two references and arrive at the claimed invention, particularly when all the limitations are not disclosed and the Examiner does not disclose the motivation for including the missing limitations. Applicant submits that the Examiner has not properly identified a motivation to combine the references.

Applicant submits there is no teaching, suggestion, or motivation to combine the teachings of Bourlas and Pollack in the manner proposed by the Examiner in the Office Action. The Examiner has failed to satisfy the third criterion for establishing a *prima facie* case of obviousness, namely that there be a motivation to combine the references.

As the Examiner has failed to satisfy the necessary criteria for establishing a *prima facie* case of obviousness with respect to claim 1, for at least the reasons discussed above, Applicant submits that claim 1 patentably distinguishes over the cited references of Bourlas and Pollack, either alone or in combination. It is respectfully requested that the Examiner reconsider and withdraw the obviousness rejection to claim 1.

Claims 30-32 are independent claims that recite similar subject matter to claim 1. For at least the reasons discussed above, Applicant submits that claims 30-32 patentably distinguish over the cited references.

Claims 12-14 and 18-29 depend on claim 1, either directly or indirectly, and claim 33 depends upon claim 32. For at least the reasons discussed above, Applicant submits that claims 12-14, 18-29 and 34 patentably distinguish over the cited references.

Furthermore, with respect to claims 18 and 19, the Examiner alleges that Bourlas teaches all the limitations of the claims except that "said remotely transmitted signal is encoded using a first code and said transmitting further comprises encoding said locally transmitted signal using a

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second code, where said second code is substantially orthogonal to said first code". The Examiner equates the claimed limitation with the disclosure found in Pollack at column 8 line 65 to column 9 line 14. Pollack discloses that tones in a burst are substantially independent from one another. Applicant submits there is no suggestion or disclosure in Pollack that specifically describes encoding remotely transmitted and locally transmitted signals with respective first and second codes.

In view of the foregoing, early favorable consideration of this application is earnestly solicited.

Respectfully submitted,

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